AMENDMENTS TO THE CLAIMS

Claims 1-20 (canceled)

Claim 21 (Currently Amended): A method of manufacturing a tunable wavelength optical filter, comprising the steps of:

(a) forming a sacrificial oxide film for floating a mirror on a semiconductor substrate;

(b) sequentially laminating conductive silicon films and oxide films for defining a mirror region on said sacrificial oxide film in a multi-layer and laminating another conductive silicon film to form a mirror;

(c) etching the rear side of said semiconductor substrate to form an opening for inserting an optical fiber thereinto;

(d) forming electrode pads for controlling the gap between the mirrors by an electrostatic force;

(e) etching the silicon film around said mirror in a dry etching method to expose said sacrificial oxide film, such that said mirror is suspended by a connecting means; and

(f) etching said sacrificial oxide film with hydrogen fluoride such that said mirror is floated on said semiconductor substrate.

wherein two semiconductor substrate formed by said steps (a) to (f) are prepared and are attached to each other through a spacer layer therebetween so that the mirrors of said semiconductor substrates are opposite to each other.

Claim 22 (Original): The method of manufacturing the tunable wavelength optical filter according to claim 21, wherein said sacrificial oxide film is etched by a wet etching method using a hydrogen fluoride solution or a gas phase etching method using anhydrous hydrogen fluoride which the etching speed of the sacrificial oxide film is quicker than that of the silicon film.

Claim 23 (original): The method of manufacturing the tunable wavelength optical filter according to claim 21, wherein said silicon film is formed so as to have a thickness of (2m+1) $\lambda/4n$ (m=0, 1, 2, ···),

wherein λ is the wavelength of the light source, and n is the optical refractive index of the silicon film.

Claim 24 (original): The method of manufacturing the tunable wavelength optical filter according to claim 21, wherein said oxide film is formed so as to have a thickness of (2m+1) $\lambda/4n$ (m=0, 1, 2, ···),

wherein λ is the wavelength of the light source, and n is the optical refractive index of the oxide film.

Claim 25 (original): The method of manufacturing the tunable wavelength optical filter according to claim 21, further comprising the step of forming thermal oxide films on the both sides of the semiconductor substrate, before forming said sacrificial oxide film.

Claim 26 (original): The method of manufacturing the tunable wavelength optical filter according to claim 21, said the step (b) comprises the steps of:

depositing a first conductive silicon film on said sacrificial oxide film,

depositing a first oxide film on said first silicon film and patterning the first oxide film to define a mirror region;

depositing a second silicon film on said first silicon film and said patterned first oxide film;

depositing a second oxide film on said second silicon film and patterning the second oxide film to define the mirror region;

forming a third conductive silicon film on said second silicon film and said patterned second oxide film.

Claim 27 (New): A method of manufacturing a tunable wavelength optical filter, comprising the steps of:

(a) forming a sacrificial oxide film for floating a mirror on a semiconductor substrate;

(b) sequentially laminating conductive silicon films and oxide films for defining a mirror region on said sacrificial oxide film in a multi-layer and laminating another conductive silicon film to form a mirror;

(c) depositing a first conductive silicon film on said sacrificial oxide film,

(d) depositing a first oxide film on said first silicon film and patterning the first oxide film to define a mirror region;

(e) depositing a second silicon film on said first silicon film and said patterned first oxide film;

(f) depositing a second oxide film on said second silicon film and patterning the second oxide film to define the mirror region;

(g) forming a third conductive silicon film on said second silicon film and said patterned second oxide film;

(h) etching the rear side of said semiconductor substrate to form an opening for inserting an optical fiber thereinto;

(i) forming electrode pads for controlling the gap between the mirrors by an electrostatic force;

(j) etching the silicon film around said mirror in a dry etching method to expose said sacrificial oxide film, such that said mirror is suspended by a connecting means; and

(k) etching said sacrificial oxide film such that said mirror is floated on said semiconductor substrate.

wherein two semiconductor substrate formed by said steps (a) to (k) are prepared and are attached to each other through a spacer layer therebetween so that the mirrors of said semiconductor substrates are opposite to each other.

Claim 28 (New): The method of manufacturing the tunable wavelength optical filter according to claim 27, wherein said sacrificial oxide film is etched by a wet etching method using a hydrogen fluoride solution or a gas phase etching method using anhydrous hydrogen

fluoride which the etching speed of the sacrificial oxide film is quicker than that of the silicon film.

Claim 29 (New): The method of manufacturing the tunable wavelength optical filter according to claim 27, wherein said silicon film is formed so as to have a thickness of (2m+1) $\lambda/4n$ (m=0, 1, 2, ···),

wherein λ is the wavelength of the light source, and n is the optical refractive index of the silicon film.

Claim 30 (New): The method of manufacturing the tunable wavelength optical filter according to claim 27, wherein said oxide film is formed so as to have a thickness of (2m+1) $\lambda/4n$ (m=0, 1, 2, ···),

wherein λ is the wavelength of the light source, and n is the optical refractive index of the oxide film.

Claim 31 (New): The method of manufacturing the tunable wavelength optical filter according to claim 27, further comprising the step of forming thermal oxide films on the both sides of the semiconductor substrate, before forming said sacrificial oxide film.